

CALIFORNIA ENERGY COMMISSION

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DOCKET
08-AFC-12



April 30, 2009

DATE APR 30 2009RECD. APR 30 2009

Mr. Kent Larsen, Vice President
Martifer Renewables Solar Thermal LLC
12555 High Bluff Drive, Suite 100
San Diego CA 92130

RE: SAN JOAQUIN SOLAR 1 & 2 HYBRID PROJECT (08-AFC-12)
DATA REQUEST SET 1 (#s 1-148)

Dear Mr. Larsen:

Pursuant to Title 20, California Code of Regulations, Section 1716, the California Energy Commission staff seeks the information specified in the enclosed data requests. The information requested is necessary to: 1) more fully understand the project, 2) assess whether the facility will be constructed and operated in compliance with applicable regulations, 3) assess whether the project will result in significant environmental impacts, 4) assess whether the facilities will be constructed and operated in a safe, efficient and reliable manner, and 5) assess potential mitigation measures.

This set of data requests, numbers 1 through 148, is being made in the areas of air quality (#s 1-36), biological resources (#s 37-52), cultural resources (#s 53-71), efficiency (#s 72-74), hazardous materials management (#s 75-76), noise and Vibration (#77), public health (#s 78-81), reliability (#s 82-83), socioeconomics (#s 84-86), soils and water resources (#s 87-113), traffic and transportation (#s 114-118), transmission system engineering (#119-125), visual resources (#s126-140) and waste management (#s 141-148). If possible, we would appreciate written responses to the enclosed data requests on or before May 20, 2009, or at such later date as may be mutually agreeable.

If you are unable to provide the specific information requested, need additional time, or object to providing requested/specific information, please send a written notice to both of the committee members overseeing application, and to me, within 20 days of receipt of this letter. If you are unable to respond within this time or are choosing to object to providing information, this notification must contain the reason(s) for not providing the information, and the grounds for any objections, or the need for additional time (see Title 20, California Code of Regulations, section 1716 (f)).

If you have any questions, please call me at (916) 653-4677 or email me at jdouglas@energy.state.ca.us.

Sincerely,

Original Signature in Dockets

Joseph Douglas
Project Manager

PROOF OF SERVICE (REVISED 4/24/09) FILED WITH
ORIGINAL MAILED FROM SACRAMENTO ON 4/30/09
MF

Technical Area: Air Quality
Author: Brewster Birdsall

BACKGROUND

Baseline Emissions, Coalinga State Hospital

The Project Description in AFC Section 3.4.4 indicates that San Joaquin Solar (SJS) Plant 1 would provide steam to a heat exchanger to serve the Coalinga State Hospital. No information is provided on the existing stationary sources at the hospital, and the AFC does not describe whether those sources would be modified or affected by the proposed project.

DATA REQUEST

1. Please identify any existing stationary sources of air pollution at the Coalinga State Hospital that would be affected by the proposed project and provide copies of existing permits issued by the San Joaquin Valley Air Pollution Control District (SJVAPCD), if non-exempt.
2. Please describe the existing emissions for the past two years from any stationary sources at the hospital that would be affected by the proposed project and whether emission reductions would occur at these sources as a result of delivering steam to the hospital.
3. Please identify the section in the AFC's description of air quality impacts where the work needed to connect the hospital steam system to SJS Plant 1 on the hospital property is addressed, such as in the construction-phase emissions.

BACKGROUND

Baseline Fuel Handling Activity, Fuel Supply

The Project Description in AFC Section 3.7.3 estimates that the project would cause up to 80 trips of heavy-duty diesel trucks per day delivering biomass fuel, and AFC Section 5.2.2.2 and Appendix B shows the trucks would travel 120 miles round trip. The Project Description in AFC Section 3.4.3.2, Table 3.4-1 also shows the biomass generated within the "San Joaquin Fuel Supply Area," but AFC Appendix A-4 shows the "Fuel Study Area" to be within a 75-mile radius or a 150 mile round trip from the proposed project site. The third-most prevalent biomass material types generated near the project appears to be cow manure (based on AFC Appendix A-4, Figure 2). Burning cow manure is not identified in the AFC Project Description as a fuel source, but if it is used, it would have significant implications for the air quality impacts from the project.

DATA REQUEST

4. Please explain the discrepancy between the 75-mile radius (150 mile round trip) for the fuel supply study (AFC Appendix A-4) and the assumption in emission calculations that trucks would travel 120 miles round trip for delivering the fuel supply.

5. Please identify what fraction of the San Joaquin Fuel Supply Area shown in AFC Table 3.4-1 would be within a 60-mile radius of the project site.
6. Please estimate the volume of the gross biomass material generated within a 60-mile (each way) trip from the project site and whether the mix of biomass fuel available to the project would be substantially different than shown in AFC Table 3.4-1.
7. Please confirm that cow manure would not be used as a fuel in the proposed project.

BACKGROUND

Baseline Emissions, Net Emissions

AFC Section 5.2 (Table 5.2-12) shows that the San Joaquin Solar 1 & 2 project would cause substantial emissions from offsite mobile sources, mainly for delivering biomass to the site. For example, the San Joaquin Valley Air Pollution Control District is a nonattainment area for ozone and particulate matter (PM₁₀ and PM_{2.5}), and the project's mobile sources would contribute nearly 300 tons per year of PM₁₀. Energy Commission staff needs to consider all stationary and mobile source emissions in the air quality impact analysis, and how the project could change baseline conditions. Staff plans to investigate whether the project would be likely to reduce emissions from baseline activities like how biomass fuel is currently handled (whether through open burning, chipping, composting, or disposal at a landfill) and whether biomass is moved to its current destination by truck or rail or some other means. More detailed baseline emissions information is needed for staff to describe the likely net emissions changes caused by introducing the project. One alternative for agricultural wood waste disposal today in Central California is open burning, but as mentioned in the AFC Project Description (Section 3.4.3.2), SJVAPCD Rule 4103 calls for eliminating open burning of orchard and other agricultural wood waste in 2010. The SJVAPCD 2007 Ozone Plan, the 2007 PM₁₀ Maintenance Plan, and the 2008 PM_{2.5} Plan rely on prohibiting open burning. This limits the future emissions from open burning in the SJVAPCD.

DATA REQUEST

8. Please describe the options that exist today in the baseline, pre-project conditions, for disposing of or handling the biomass fuel in the vicinity of the proposed project.
9. Please describe whether any of the biomass fuel generated in the fuel supply area today is transported for disposal and/or disposed of through open burning. This response should include citations to relevant studies or references.
10. Please describe whether the proposed project would have the indirect effect of reducing fuel transport, disposal, and/or open burning activity that occurs in the baseline, pre-project setting. This response should include citations to relevant studies or references.
11. Please estimate what number of the project-related 28,360 truck trips for fuel delivery annually (AFC Appendix B-3) are already occurring in the baseline

conditions and estimate the baseline, pre-project truck trip lengths for handling the fuel supply. This response should include citations to relevant studies or references.

12. Please estimate the criteria pollutant and greenhouse gas (GHG) emissions occurring in the baseline, pre-project conditions attributable to transport, disposal, and/or open burning of the proposed project fuel supply.
13. Please estimate the emissions that would be expected to occur due to transport, disposal, and/or open burning of the proposed project fuel supply after 2010, when limits in SJVAPCD Rule 4103 become effective.

BACKGROUND

Project Description, Construction Activity and Emissions

Staff needs to verify the emissions associated with the construction phase delivery of the myriad material and equipment for the power plant including the concrete, steel, mirrors, and the water supply. AFC Appendix B-2 indicates that up to 30 heavy duty trucks and 3 medium duty trucks per day would deliver material to the site with a round-trip distance of 100 miles. However, this is inconsistent with the Project Description (AFC Table 3.6-3) that shows up to 21 heavy duty and 21 medium duty truck round trips would occur per day.

DATA REQUEST

14. Please review the various construction material and equipment delivery plans (including delivery of concrete, steel, mirrors, and the water supply) and consistently identify the maximum daily truck trips to the site for construction, revising the emissions and air quality impact analysis if necessary.
15. Please summarize the origin of construction materials and basis for assuming a 100-mile round trip distance, given that Fresno is approximately 70 miles from the project site.

BACKGROUND

Construction and Operations, Fugitive Dust Emissions Calculations

Staff is concerned that out-of-date emission factors for paved and unpaved road fugitive dust (SCAQMD circa 1993 method versus U.S. EPA AP-42 Sections 13.2.1 and 13.2.2 methods circa 2006) were used to determine onsite and offsite emissions for SJS construction and operation.

DATA REQUEST

16. Please identify why the more recent factors from U.S. EPA AP-42 Sections 13.2.1 and 13.2.2 were not used to determine road dust emissions.

BACKGROUND

Project Description, Cooling System Emissions

The AFC description of the plant cooling system (AFC Section 3.4.7) identifies wet-surface air coolers (WSAC), without describing the steam-cycle cooling system. The AFC air quality section (p. 5.2-48) seems to describe a joint WSAC/cooling tower. It is not clear from the Process Schematic in AFC Figure 3.4-4 or Figure 3.4-5 whether an inlet air cooling system would be provided for the biomass fired boiler, and WSAC would be a source of particulate matter drift. The emission from any WSAC should be included in the discussion of air quality impacts.

DATA REQUEST

17. Please confirm whether wet-surface air coolers would be included in the project description, and, if so, describe the equipment, the potential emissions, and air quality impacts.

BACKGROUND

Operations, Fuel Handling Emissions, and Solar Equipment

AFC Section 5.2.2.2 identifies fugitive particulate emissions from the unloading and handling of the biomass, lime, limestone and fly ash and the biomass loader (essentially a front-end loader), without any other onsite biomass handling equipment being needed. Emissions from any other equipment associated with onsite biomass fuel handling, aside from the front-end loader (at 0.77 lb/day NO_x), are not shown in AFC Appendix B-3 under "Biomass Unloading Combustion Exhaust Emissions." The emission summary for onsite biomass handling equipment in AFC Appendix B-3 contradicts the detailed emissions by showing 2.74 lb/day NO_x. The notes beneath the "Biomass Unloading Combustion Exhaust Emissions" table claim that the front-end loader would be used only for "spill clean-up." Aside from a front-end loader, the AFC shows no other equipment like excavators, screeners, or grinders needed to handle the biomass fuel onsite from delivery to the combustors. The annual hours of expected operation for fuel handling equipment (the front-end loader) are 1,040 hours (AFC Appendix B-3), which is just a fraction of the biomass combustors expected annual operation of 6,570 hours per year (AFC Section 5.2.2.2).

DATA REQUEST

18. Please verify the inventory of sources making up the onsite biomass handling equipment list and confirm that no onsite sources other than a front-end loader need to be identified for the biomass feed, lime, limestone, and ash systems or auxiliary facilities. This response should confirm whether any other equipment like excavators, screeners, or grinders would be needed to handle the biomass fuel onsite in the steps leading up to fuel delivery to the combustors.
19. Please verify the emission calculations making up the onsite biomass handling equipment emissions and confirm that all emissions from the biomass feed, lime, limestone, and ash systems, and auxiliary facilities, are included.

20. Please verify that the expected hours of operation and emissions for the front-end loader, and any other onsite biomass handling equipment, used for purposes other than “spill clean-up.”
21. Please verify that all emissions from pumps and mechanical drives for the solar system are included in the onsite emissions totals.

BACKGROUND

Proposed Mitigation, Emission Reduction Credits

AFC Section 5.2.4 lists the applicant’s estimate of emissions offsets requirements (AFC Table 5.2-24) and explains that the applicant has been active in pursuing obtaining emission reduction credits (ERCs) for the project. The applicant has identified potential sellers of ERCs and the proposed quantities as part of confidential filings to the Energy Commission. However, the list of ERCs is currently tentative and confidential. Staff will need to publish the list of credits and values at the time of the PSA. Additionally, the applicant’s estimate of offset requirements does not include the project’s proposed mobile source emissions. Staff’s recommendation for mitigation of operational emissions is that all nonattainment pollutants and their precursors be offset through emission reductions at a minimum ratio of 1:1. However, the applicant has not proposed to offset the project’s extensive direct offsite emissions. Staff needs to be informed when submittals regarding ERCs are made by the applicant to SJVAPCD. Staff also needs additional information on the applicant’s proposal for offsetting the project’s total direct emissions of nonattainment and precursor pollutants.

Staff understands that the information being requested in the following data requests may be confidential, and that the applicant would have to file the information with a request for confidentiality.

DATA REQUEST

22. Please provide an update on the progress to procure ERCs to satisfy SJVAPCD permitting requirements.
23. Please identify the specific proposed ERCs that would be used for offsets and mitigation.
24. Please provide a mitigation proposal for the proposed project’s total direct operational criteria pollutant emissions [190.4 tons per year (tpy) of NO_x, 50.9 tpy VOC, 49.7 tpy SO₂, 389.7 tpy PM₁₀, and 158.5 tpy PM_{2.5} (AFC Table 5.2-12)].

BACKGROUND

Proposed Control Technology, Biomass Combustors

The AFC does not provide any detailed information in support of the proposal for Best Available Control Technology (BACT) on the biomass combustors. The first step in the process of determining BACT is to identify all available control technologies. AFC Table 5.2-25 provides SJVAPCD BACT Guideline levels, but from the limited information in

AFC Section 5.2.5, it is not clear whether other, more-stringent control technologies would be feasible. It is not clear whether the applicant conducted a full BACT analysis, including a routine search of U.S. Environmental Protection Agency (U.S. EPA) databases for technologies and the lowest achievable emission rates (i.e., the “RACT/BACT/LAER Clearinghouse”). For example, a cursory review of the U.S. EPA database shows a wood waste boiler in the State of Washington with a limit of 0.020 lb/MMBtu PM₁₀,¹ which would be lower than the applicant’s proposal of 0.025 lb/MMBtu (AFC Table 5.2-25). Staff needs to confirm that the proposed control technologies would be consistent with guidelines from U.S. EPA, the California Air Resources Board (CARB), and SJVAPCD. It is not clear from the application whether emissions during startup and partial-load modes of operation would be minimized to the lowest achievable emission rates.

DATA REQUEST

25. Please provide a discussion of Best Available Control Technology (BACT) that identifies the available control technologies and achievable emission rates, based on a review of relevant databases and guidelines maintained by the U.S. EPA, CARB, and SJVAPCD. This response should include citations to relevant databases or references.
26. Please confirm that the analysis of control technologies considers all available technologies for reducing emissions during startup and partial-load modes of operation.
27. Please identify the lowest achievable emission rates identified in the review of BACT for the startup and partial-load modes of operation.

BACKGROUND

Proposed Emission Limits, Biomass Combustors

The SJVAPCD 2007 Ozone Plan (at Appendix I) and the 2008 PM_{2.5} Plan identified potential control options for boilers firing biomass waste, and that emission limits as low as 40 parts per million (ppm) NO_x may be achievable for this source category (as in Candidate Measure S-COM-4 for a feasibility study by SJVAPCD in the 2008 PM_{2.5} Plan). Additional information is needed to compare the proposed project NO_x and VOC emissions from the biomass combustors with similar sources in this category because the application gives emissions in terms of mass and heat input rates, not exhaust concentration.

DATA REQUEST

28. In order to compare project performance with other similar biomass power plants, please provide the maximum NO_x and VOC emission limits in terms of exhaust concentrations (parts per million, by volume, dry or ppmvd).

¹ This is from an entry on the U.S. EPA database for a wood waste boiler (RBLC ID: WA-0335; for Simpson Tacoma Kraft Company, LLC). Available at: <http://cfpub.epa.gov/RBLC/htm/bl02.cfm?lang=eg>.

BACKGROUND

Proposed Emission Limits, Partial-Load of Biomass System

Partial load operations of the biomass system are expected to routinely occur (AFC Section 3.8.2 and AFC Table 5.2-23). Staff needs to verify that the emissions and impacts for all modes, including partial loads, are thoroughly documented. Heat input rates during startups are shown in “Table #-#; biomass fluidized bed (BFB) Cold Start-Up Sequence” in AFC Appendix B-3. However, it is not clear from the application what exhaust concentrations would occur during startup and partial-load modes, other than for the 50 percent load case where emissions are given to be one-half that of full-load. Because of lower flows and velocities through the stack during startup and partial-load modes, vertical momentum of the exhaust would be less and elevated impacts could occur. The dispersion modeling protocol (AFC p. 5.2-33 and Appendix B-6) shows only 100 percent load mode being modeled.

DATA REQUEST

29. Please provide technical information, including vendor specifications, that expands on AFC Appendix B-3 “Table #-#” and characterizes the proposed emissions during startups as a function of time. This should show how exhaust concentrations would vary during startups and how electrical output would vary, as the biomass combustors and emission control devices come online.
30. Please provide information that characterizes how biomass combustor emission rates and exhaust concentrations vary at load-settings above and below 50 percent. Ideally, this information would show how emission rates and exhaust concentrations would ramp with increasing load from zero to 100 percent.
31. Please describe the lowest load (or turndown ratio) for the biomass combustors that would be compliant with the applicant's proposed emission limits.
32. Please confirm whether extended or prolonged (e.g., for multiple hours or overnight, as foreseeable) operation in partial-load modes was considered in the AFC's dispersion modeling and impact analysis, and if not, provide an impact analysis of partial-load scenarios, with appropriate stack conditions (i.e., velocities and flows).

BACKGROUND

Proposed Emissions, Commissioning of Biomass System

The AFC Appendix B-4 provides a cursory overview of the emissions associated with initial commissioning with no technical data or vendor specifications presented to justify the numbers in these tables. There is no discussion of the basis for the emission factors provided in Appendix B-4 or how the natural gas and biomass fuel would be phased.

DATA REQUEST

33. Please provide technical information, including vendor specifications, that describes the commissioning activities and provides evidence for the emission factors used in

AFC Appendix B-4. This should describe how natural gas and biomass fuel would be phased and the load or electrical output for the phases of commissioning.

BACKGROUND

Mirror Washing Truck Emissions

Based on the Project Description (AFC Section 3.4.2.2 and figures), the solar collector assemblies (SCAs) would include 90 loops in rows that form about 4,000 linear-feet of mirrors per row. This equates to approximately 360,000 linear-feet of mirrors, or about 68 miles on the site. AFC Section 5.2.2.2 and Appendix B-3 shows that two water trucks would be used for mirror cleaning about once per two-week period, but there is no discussion of the strategy that will be used to clean the mirrors of the SCAs. Staff needs information on the types of trucks that would be used and how the emissions were calculated from those vehicles.

DATA REQUEST

34. Please provide a description of the techniques that would be used to clean the mirrors of the SCAs. Include in this description the transport of the water supply, the number and types of vehicles that would be used, the frequency of use (daily, monthly and annual) of these vehicles, and the miles traveled (daily, monthly and annual).
35. Please describe if the emissions from mirror cleaning in Appendix B-3 include the activity of watering the site to achieve the cited 85 percent dust control efficiency or if site watering would cause additional water truck activity.

BACKGROUND

Cumulative Impacts

AFC Section 5.2.3 and Appendix B-6 promises that there will be a cumulative impacts analysis that considers reasonably foreseeable projects that may contribute to the air quality impacts of the proposed project. The status of the applicant's proposed consultation with the SJVAPCD for identifying cumulative projects is not known.

DATA REQUEST

36. Please provide the list of cumulative sources to be considered, the cumulative analysis of ambient air quality impacts, and the date when the cumulative impacts analysis will be filed with the Commission.

Technical Area: Biological Resources
Author: Heather Blair

BACKGROUND

Due to specific survey timing protocols, focused surveys for rare plants and blunt-nosed leopard lizard (*Gambelia sila*; BNLL) were not conducted along the proposed southern transmission line route prior to submittal of the Application for Certification (AFC) and Supplemental information in Response to CEC Data [Adequacy] Requests. However, these focused surveys were scheduled for Spring 2009. Staff requires the results of the focused surveys for rare plants and BNLL to complete the analysis.

DATA REQUESTS

37. Please provide a detailed report of the rare plant and BNLL surveys, including methodology, survey areas, results, and names/credentials of biologists involved in the field surveys. If surveys have not been conducted, please provide a status report and schedule for completion.
38. Please provide copies of California Natural Diversity Database (CNDDDB) field survey forms for any special-status species, including the BNLL, observed at the California Department of Fish and Game (CDFG) Pleasant Valley Ecological Reserve in June 2008. These should also be submitted to CDFG for incorporation into the CNDDDB.

BACKGROUND

The proposed San Joaquin Solar (SJS) 1 & 2 project may result in permanent and/or temporary impacts to several state and/or federally protected species, including San Joaquin kit fox (*Vulpes macrotis mutica*; federally Endangered, State Endangered) and blunt-nosed leopard lizard (federally Endangered, State Fully Protected and Endangered). Although preliminary contacts with United States Fish and Wildlife Service (USFWS) and CDFG have been initiated and appear to be ongoing (as demonstrated in records of conversation provided in Biological Resources Technical Report Appendix J), further agency consultation regarding these species will be required. Although the applicant stated that an Incidental Take Permits may be required by USFWS (Supplemental Data Adequacy Response # 14), the process by which this would be obtained was not identified.

DATA REQUEST

39. Please provide any supporting documents (letter or record of conversation) that result from communication with USFWS and CDFG regarding potential impacts to state and/or federally protected species. Communication should be focused on:
 - A. Permits required for the project (i.e., Incidental Take Permits), the steps the applicant has taken, a description of the process (i.e., Section 7 or Section 10), and the schedule for obtaining the permits.
 - B. Any measures likely to be included in the Incidental Take Permits, including offsite habitat compensation and the contacts for purchase of mitigation credits/acreage.

BACKGROUND

The proposed SJS 1 & 2 project site is adjacent to Zapato-Chino Creek and both the northern and southern transmission line routes would cross this creek. Zapato-Chino Creek is recognized by CDFG as a likely southwest-northeast migration corridor for San Joaquin kit fox (SJKF) and other wildlife through the agricultural and other land uses in the project vicinity. In a site visit with the applicant in April 2008, CDFG requested a 500-foot buffer around Zapato-Chino Creek to maintain the SJKF movement corridor and minimize flooding issues. It is unclear whether transmission structures would be sited within the recommended 500-foot buffer around Zapato-Chino Creek.

DATA REQUEST

40. Please provide proposed transmission structure locations near Zapato-Chino Creek or an assurance that transmission structures would not be sited within 500-feet of the creek.

BACKGROUND

Combustion of biomass for electric generation, including the loading and unloading of fly ash produced in the biomass combustors, may result in air emissions containing toxic air contaminants (TACs) (e.g., dioxins, furans, metals). These TACs may be deposited on vegetation consumed by wildlife, potentially resulting in bioaccumulation and adverse physiological impacts to wildlife or direct impacts to vegetation (e.g., grasslands proximate to the project area and native vegetation within the CDFG Pleasant Valley Ecological Reserve). The Public Health analysis will analyze uptake pathways via inhalation and the food chain and the resultant potential affects to humans; however, this analysis is also needed in regard to biological resources.

DATA REQUEST

41. Please provide an analysis of the potential impacts to biological resources (direct impacts to vegetation and impacts from bioaccumulation of TACs) resulting from biomass emissions.

BACKGROUND

The proposed SJS 1 & 2 project would require groundwater from the Pleasant Valley Groundwater Sub-basin to satisfy at least part of the project's construction and operation water supply needs. The Pleasant Valley Groundwater Sub-basin is in a state of overdraft and additional pumping for the SJS 1 & 2 project without adequate recharge may exacerbate the overdraft condition and further lower the water table. Lowering the water table may reduce or eliminate the availability of water for groundwater-dependent plant species, thereby resulting in a potentially significant impact. This issue was not analyzed in the AFC and staff requires additional information to determine whether biological resources may be adversely impacted.

DATA REQUESTS

42. Please identify any groundwater-dependent plant species or sensitive plant communities in the Pleasant Valley Groundwater Sub-basin.

43. Should such species or plant communities be identified, please provide an analysis of potential impacts and mitigation options for biological resources resulting from groundwater usage in the Pleasant Valley Groundwater Sub-basin.

BACKGROUND

The proposed project includes construction of one or more lined evaporation ponds to contain reverse osmosis discharge water and other non-recycled wastewater streams (AFC Section 5.5.2.3, page 5.5-13). Birds and other wildlife could seasonally inhabit or use evaporation ponds for resting or foraging. The waste water directed to the evaporation pond would contain some contaminants, including selenium and salt. Evaporation would increase concentrations of selenium and salt in the evaporation pond, which could cause adverse impacts to wildlife from exposure and bioaccumulation of selenium, salt, and other contaminants. Additional information about the evaporation ponds is needed by staff to analyze potentials impact to wildlife.

DATA REQUESTS

44. Please provide proposed evaporation pond design specifications, including but not limited to, number of ponds, surface area, minimum and maximum operational capacity depth, expected maximum depth, and slope of banks.
45. Please provide an assessment of alternatives to the use of evaporation pond(s) (e.g., zero liquid discharge system).
46. Please provide specific design, construction, and operation elements that would discourage wildlife use.
47. Please provide an analysis of impacts to biological resources, including the resident and migratory species that could be at risk.
48. Please develop and provide a draft monitoring/remediation action plan for the evaporation pond(s), including:
- A. A discussion of the frequency and nature of the monitoring;
 - B. The elements that will be monitored (e.g., selenium, sodium);
 - C. Remedial actions if the ponds become a hazard for wildlife; and
 - D. The triggers for implementation of remedial actions.

BACKGROUND

There is no information in the AFC or other applicant-provided information regarding the location of the natural gas pipeline or water supply pipelines, the biological resources present along the pipeline routes, potential impacts of pipeline construction, and permits required. Staff requires this information to complete its analysis.

DATA REQUESTS

49. Please provide a map depicting the proposed natural gas pipeline and water supply pipelines with an overlay of vegetation communities, potentially jurisdictional waters and wetlands, sensitive species locations, and CDFG Pleasant Valley Ecological Reserve boundaries.
50. Please describe the baseline environment with regard to biological resources, including special-status and common species as well as vegetation communities and sensitive habitats present and/or potentially occurring along the pipeline routes.
51. Please provide a discussion of direct, indirect, and cumulative impacts to biological resources from construction, operation, and maintenance of the pipelines. Include a discussion of temporary impacts to San Joaquin kit fox habitat and resultant mitigation as well as where habitat credits would be purchased.
52. If any pipeline routes are proposed through Zapato-Chino Creek, please contact CDFG and RWQCB and provide a summary of their suggested impact avoidance and minimization measures and other mitigation measures.

Technical Area: Cultural Resources

Author: Beverly E. Bastian

BACKGROUND

The project description in the AFC (section 3) for the San Joaquin Solar 1 & 2 (SJS 1 & 2) power plant project describes equipment installations that appear to require foundations capable of considerable weight-bearing. Staff assumes that such foundations would have to extend to some depth in the ground and additionally that over-excavation of the holes for these foundations and filling with engineered fill could be required to ensure the stability of the foundations. Additionally, auxiliary feature construction, such as the evaporation pond and on-site trenching for steam or heat transfer fluid piping, are also likely to require excavation to some depth. To assess potential project impacts to possible buried archaeological resources, staff needs information on the greatest depths to which the excavations for the proposed foundations, pond, and trenches would extend, and the locations of any other excavations expected to exceed three feet below the present surface.

DATA REQUESTS

53. Please provide the depths of the excavations required for the following features and foundations for proposed equipment:

- A. biomass combustor and boiler trains
- B. stream turbine generators
- C. air cooling units
- D. transformers
- E. water treatment piping system
- F. service water piping system
- G. fire protection piping system
- H. potable water piping system
- I. water treatment buildings
- J. treated reclaimed water tank
- K. raw reclaimed water tank
- L. raw well water and fire water tank
- M. demineralized water tanks (4)
- N. potable water tanks (2)
- O. ammonia storage tanks (4)

- P. construction assembly building
- Q. warehouses
- R. biomass unloading buildings
- S. control buildings
- T. solar collector assemblies
- U. stormwater evaporation pond
- V. stormwater drainage collection system (infiltration basins)
- W. poles for the on-site 230-kV overhead transmission line
- X. poles for the off-site 230-kV overhead interconnection to the Gates Substation
- Y. off-site reclaimed water pipeline between the plant and the City of Coalinga's future Waste Water Treatment Facility
- Z. off-site steam pipeline between SJS 1 and Coalinga State Hospital
- AA. Off-site and on-site natural gas line construction

54. Please provide a project site plan showing the locations where excavation would exceed three feet below the surface by shading or other such convention.

BACKGROUND

Satellite imagery currently available on Google Earth shows a triangular area on the southern boundary of the proposed plant site that is not being used for agriculture (this area can also be seen in figure 2 of the project's Environmental Site Assessment (ESA)). Several large, elongated white structures appear on the satellite imagery near the southwest corner of the triangle, but are not mentioned in the ESA. To ensure that significant project-related impacts to any California Register of Historical Resources-eligible cultural resources are identified and mitigated, staff needs to know what these structures are, how old they are, and whether they could be historical resources (eligible for the California Register (CRHR)).

DATA REQUEST

55. Please identify the structures in the described location as to function, age, and potential status as historical resources.

BACKGROUND

In order to meet Energy Commission Data Adequacy requirements, the applicant sent letters inquiring about known local cultural resources to Fresno County, to local historical and archaeological societies, and to representative Native Americans. Staff

needs to know if any responses to these letters have been received since the AFC was submitted.

DATA REQUEST

56. Please provide copies of any letters received from Fresno County, or from local historical and archaeological societies, or from contacted Native Americans in response to the applicant's inquiries about local cultural resources.

BACKGROUND

The "Geologic Hazards and Resources" section of the AFC notes that a geotechnical study of the proposed plant site will be prepared at some future time (p. 5.3-1). Staff needs to review this report for evidence of the potential for subsurface archaeological deposits.

DATA REQUEST

57. Please provide a copy of the project's geotechnical study when it is available.

BACKGROUND

The AFC indicates that the primary water source for the proposed SJS 1 & 2 project would be the reclaimed water from the future wastewater treatment facility of the City of Coalinga, with treated on-site well water being used until the reclaimed water becomes available in 2011 (p. 3-10). No information is provided on the location of the future treatment plant and on the route of the pipeline that would have to be installed to carry the reclaimed water to the proposed power plant.

Similarly, the AFC indicates that steam from the SJS 1 plant would be piped to the Coalinga State Hospital as a replacement for natural gas currently used for heating, cooking, cleaning, and hot water heating (p. 3-8). Again, no information is provided on the route of this steam-conveying pipeline.

Because pipelines typically entail ground disturbance, to ensure that all potential project impacts on possible buried cultural resources are identified and assessed, staff needs to know the routes of these pipelines, whether these routes have been surveyed for cultural resources, and, if/when surveyed, what cultural resources were/are identified.

DATA REQUESTS

58. Please provide a map showing the detailed routes of the reclaimed water pipeline to the water treatment facility and of the steam pipeline to the hospital, including the routes within the plant boundaries and the site plan.
59. If the reclaimed water pipeline route and the steam pipeline route have not been surveyed for cultural resources, please have a qualified archaeologist survey these routes and record on Department of Parks and Recreation (DPR) 523 forms any cultural resources that are identified.

60. Please submit to staff a report, under confidential cover, on the methods and results of these surveys, with recommendations for the treatment of any cultural resources identified in the surveys, and copies of any completed DPR 523 forms.

BACKGROUND

The AFC supplement indicates that the proposed southern route for the transmission line will probably be the final choice (p. PROJ-1). Since this route entails the transmission line going underground, under I-5, staff assumes that some mode of tunneling would be used to install this segment of the transmission line. Because this would entail ground disturbance, to ensure that all potential project impacts on possible buried cultural resources are identified and assessed, staff needs information on the horizontal and vertical extent of the ground disturbance that would be associated with the transmission line tunneling, and needs to ensure that the entirety of the area that would be affected by the tunneling has been surveyed for cultural resources.

DATA REQUESTS

61. Please describe the process that is proposed for constructing the underground transmission line under I-5, with an emphasis on ground disturbance and provide the horizontal and vertical dimensions of the disturbed area.
62. Please provide a scaled plan figure and a scaled profile figure that shows the area that would be subject to ground disturbance from the construction of the underground transmission line.
63. Please clarify whether the cultural resources survey already completed in support of the AFC covered the entire area that the transmission line tunneling would affect. If it did not, please have a qualified archaeologist survey the additional area and record on Department of Parks and Recreation (DPR) 523 forms any cultural resources that are identified; and
64. Please submit to staff a report, under confidential cover, on the methods and results of this additional survey, with recommendations for the treatment of any cultural resources identified in the survey, and copies of any completed DPR 523 forms.

BACKGROUND

The AFC indicates that site clearing would be accomplished in the first six months of the project, but no details of the character, volume, or disposal of the cleared material are provided (p. 3-26). Cutting and filling to achieve a level finish grade are indicated to be balanced, but the final geotechnical evaluation could change this (p. 3-26). If site clearing would entail, in part, the disposal of unsuitable materials off site, and if achieving a finish grade would entail importing suitable fill from an off-site borrow area, staff needs to know whether or not any non-licensed, non-commercial borrow or disposal sites that may be used by the proposed project have been surveyed for the presence of cultural resources.

DATA REQUEST

65. Please indicate whether the proposed project may use any non-licensed, non-commercial soil borrow or disposal sites. If so:
- A. Please have a qualified archaeologist survey the borrow and disposal sites and record on Department of Parks and Recreation (DPR) 523 forms any cultural resources that are identified; and
 - B. Please submit to staff, under confidential cover, a report on the methods and results of these surveys, with recommendations on the CRHR eligibility of any cultural resources identified in the surveys, recommendations for their treatment, and copies of any completed DPR 523 forms.

BACKGROUND

A recent synthesis of archaeological and geoarchaeological information on the California Central Valley ("The Central Valley: A View from the Catbird's Seat," by Jeffrey S. Rosenthal, Gregory G. White, and Mark Q. Sutton, in *California Prehistory: Colonization, Culture, and Complexity* (Terry L. Jones and Kathryn A. Klar, eds., 2007), suggest that prehistoric deposits in the Central Valley dating before 2,500 years ago have either been obliterated by agricultural activities or buried by ongoing alluvial processes (p. 150).

Consistent with that observation, the applicant's cultural resources consultant identified no indications of prehistoric use of the project area either from existing site records or through pedestrian survey. Survey reports and site forms for the vicinity surrounding the project areas, however, indicate prehistoric and ethnographic use of the lands bordering the several water courses that run out of the hills to the southwest and around the proposed plant site.

The nearest prehistoric archaeological site, reported to have been a habitation site identified in 1950 by a Tache Yokuts informant, was located near Zapato Chino Creek, on the now defunct Polvadero Golf Course, less than a mile southeast of the proposed plant site. The confluence of Los Gatos Creek and Jacalitos Creek, about 1.5 miles to the northwest of the project site, clearly held appeal over many years. It was first an Indian village known to the Spanish missionaries, then a watering stop-over point on El Camino Viejo in the 1830s, then an 1854 Californio² homestead, then a public sheep-shearing operation and store in the 1870s, and most recently, Pleasant Valley Ranch. Farther down Los Gatos Creek and about 2.0 miles northeast of the proposed project site, the ethnographically known Tache Yokuts village of Udiju (archaeological site CA-Fre-49) was located, and four prehistoric sites were located nearby on the creek or its tributaries, exhibiting chipped and ground stone, shell, and non-human bone fragments. The presence of these known ethnographic and prehistoric resources near the proposed plant site demonstrates use of the vicinity of the plant site for habitation and subsistence activities in prehistory and history.

² "Californios" is what the Mexican citizens of Alta California called themselves before the Mexican-American War, the Gold Rush, and U.S. statehood. The appellation fell into disuse in the 1860s, as the Californios were assimilated into the American population of the state.

Proximity to the local creeks is clearly a factor in the location of prehistoric sites currently visible on the surface. The plant site is located between two creeks (Jacalitos and Zapato Chino), but no permanent water course crosses the plant site now. The geological description of the sediments of Pleasant Valley, however, characterizes them as “deposited in a low-energy alluvial-plain type environment, with small-scale drainages and streams that shifted often.” Thus it is possible that in the past 14,000 years, one or more water courses could have crossed the plant site, creating a location attractive to prehistoric Native Americans who left remnants of their activities behind, now buried under alluvium from flooding on the local creeks.

The project vicinity is known to be flood-prone. The 1854 Californio homestead at the confluence of Los Gatos Creek and Jacalitos Creek was washed away in a flood in 1862. In more recent times, several serious floods have occurred on the local creeks. In March, 1958, starting downstream of the Los Gatos Creek-Jacalitos Creek confluence, floodwaters extended back in a three-mile-wide fan that probably reached the proposed plant site. In February, 1969, a 54-hour storm produced measurements in local rain gauges that exceeded the 100-year, 24-hour estimates, resulting in flows on local creeks that broke all records. More than 10,000 acres of farm land was flooded, and the I-5 bridge over Arroyo Pasajero collapsed, killing seven people.

This history indicates that the plant site is in an area that is geologically very active, with frequent, heavy, and extensive deposition of sediments occurring now, and probably occurring in prehistory, as well. Two of the archaeological sites near the Tache Yokuts village of Udiju on Los Gatos Creek were visible to the surveying archaeologists only in ruts or gullies due to deposits of sediments covering them.

The known prehistoric and ethnographic use of the plant site vicinity and the very active sediment depositional regime exhibited in the plant site vicinity indicate that some potential exists for buried archaeological deposits to occur on the plant site. The applicant acknowledges that buried archaeological deposits could be encountered during construction. Staff consequently needs additional information to more concretely assess the likelihood of the presence of buried archaeological deposits on the proposed plant site, so that the proposed project’s potential impacts to cultural resources may be more fully assessed.

To facilitate a more substantive factual assessment of whether the proposed project may impact potentially significant buried archaeological deposits, staff requests that the applicant provide a geoarchaeological analysis of the project area, the purpose of which would be to assess the likelihood of encountering such deposits.

DATA REQUESTS

66. Please obtain the services of a professional in geoarchaeology: a person who, at a minimum, meets the U.S. Secretary of the Interior’s Professional Qualifications Standards for archaeology and is able to demonstrate the completion of graduate-level coursework in geoarchaeology or Quaternary science, or has a level of experience that staff determines is equivalent. Please submit the resume of the proposed geoarchaeologist for staff review and approval.
67. Please have the approved geoarchaeologist provide a discussion, based on the available Quaternary science and geoarchaeological literature, of the historical

geomorphology of the proposed plant site and the tunneling location proposed for the undergrounding of the transmission line beneath I-5. The discussion should describe the development of the landforms on which the plant site and tunneling location are proposed, with a focus on the character of the depositional regime of each landform since the Late Pleistocene epoch. The discussion should include data on the geomorphology, sedimentology, pedology, hydrology, and stratigraphy of the plant site and tunneling location, and the near vicinity. The discussion should relate landform development to the potential at the plant site and the tunneling location for buried archaeological deposits. The discussion should include maps overlaying the above data on the plant site and tunneling location.

68. In the absence of sufficient extant Quaternary science and/or geoarchaeological literature pertinent to the reconstruction of the historical geomorphology of the project area, please have the approved geoarchaeologist design a primary geoarchaeological field study of the plant site and tunneling location, submit a research plan for staff approval, and conduct the approved research. The purpose of the study is to facilitate staff's assessment of the likelihood of the presence of archaeological deposits buried deeper than 3 feet on the plant site and tunneling location. The primary study should, at a minimum, include the following elements:
- A. A map of the present landforms in the project area at a scale of not less than 1:24,000. The data sources for the map may be any combination of satellite or aerial imagery that has been subject to field verification or the result of a field mapping effort.
 - B. A sampling strategy to document the stratigraphy of the portions of the plant site and tunneling location landforms where the construction of the proposed project will involve disturbance at depths greater than 3 feet.
 - C. Data collection necessary for determinations of the physical character, the ages, and the depositional rates of the various sedimentary deposits and paleosols that may be beneath the surface of the plant site and the tunneling location to the proposed maximum depth of ground disturbance. Data collection at each sampling locale should include a measured profile drawing and a profile photograph with a metric scale, and the screening of a small sample (3 5-gallon buckets) of sediment from the major sedimentary deposits in each profile through 1/4 inch hardware cloth. Data collection should also include the collection and assaying of enough soil humate samples to reliably radiocarbon date a master stratigraphic column for each sampled landform.
 - D. An analysis of the collected field data and an assessment, based on those data, of the likelihood of the presence of buried archaeological deposits at the plant site and tunneling location, and, to the extent possible, the likely age and character of such deposits.
69. Please have the approved geoarchaeologist prepare a report of the primary field study and submit it to staff under confidential cover.

BACKGROUND

Among the previous cultural resources studies the applicant provided to staff is California Historical Resources Information System/Southern San Joaquin Valley Archaeological Information Center (CHRIS/SSJVAIC) report # 244, on the 1989 survey of three alternative sites for the planned Department of Corrections prison to be built near Coalinga. One of the parcels, "the Jayne Avenue site," included the entire section (3) on which the proposed San Joaquin Solar 1 & 2 would be located and the adjacent section (4) to the west. This report mentions that abandoned oil production infrastructure is present in the northeast corner of section 3. The report identifies this infrastructure as an extension of the Gujarral Hills oil fields, but states that only concrete drill pads and "sump depressions" remain. The AFC indicates that the oil field to the north of the proposed project site was where one of California's biggest early oil booms occurred. From the late 1870s up through the present day, oil exploration and recovery have been very important in local history and were the reason for the establishment of the town of Coalinga in 1889 (p. 5.7-12). Infrastructure associated with this locally historically significant economic activity could be eligible for the CRHR, so staff needs information on this potential resource.

The applicant's ESA provides some information on this resource. Two above-ground storage tanks were formerly present. The "sump depressions" were probably ponds used to contain and circulate drilling mud. A total of six oil wells belonging to Chevron, USA, Inc. were in this field; two were dry, and four hit oil. All were eventually plugged and abandoned. The ESA had a little additional historical information on two of these wells, #'s 62 and 71. Number 62 was drilled in April, 1950, and abandoned by backfilling with sand-cement slurry and cutting and removing the casing at 5 feet below the surface in November, 1990. Number 71 was drilled in 1949 and abandoned by plugging with concrete and cutting and removing the casing at 6 feet below the surface in October, 1978. So parts of this infrastructure are at least 50 years old, making it potentially eligible for the CRHR.

Neither the applicant's architectural historian nor the archaeologist addressed this infrastructure as a potential cultural resource in the AFC. Because this resource is located on the higher-elevation part of the plant site, it appears that it would be subject to total destruction during the terracing and leveling needed for proposed equipment installation. The information staff needs regarding this resource includes the historic context necessary to making a recommendation on its eligibility for the CRHR, an eligibility recommendation for the resource based on that historic context, and a recommendation on the appropriate mitigation for the destruction of the resource by the proposed project if the resource is recommended as eligible for the CRHR.

DATA REQUESTS

70. Please have a qualified historical archaeologist and a qualified architectural historian collaborate on recording this site on Department of Parks and Recreation (DPR) 523 forms and on conducting historical research to establish a historic context as the basis for a determination of the resources eligibility or non-eligibility for the CRHR.
71. Please provide to staff, under confidential cover (because this is a potential historical archaeological site), completed DPR 523 forms for this resource, with recommendations on its CRHR eligibility, as both a historic-period archaeological site and as a historic property, and recommendations for appropriate mitigation for its destruction.

Technical Area: Power Plant Efficiency

Author: Erin Bright

BACKGROUND

Section 3.4.3.1 of the AFC describes the operation of the biomass facilities for the plant and states that the insulated biomass combustor would be able to maintain high temperatures for up to 48 hours, allowing for rapid hot restarts. Section 3.7.1 states that the plant will be dispatched by Pacific Gas & Electric to meet market demand.

DATA REQUEST

72. A. Please discuss whether any additional biomass fuel or auxiliary fuel, such as natural gas, would be necessary for cold starts of the boiler in the event that the biomass facilities are not dispatched during the 48 hour hot start window.
- B. Please quantify, in British thermal units (Btu), how much additional fuel would be needed for boiler start up, if necessary.

BACKGROUND

Section 3.7.3 of the AFC states that biomass deliveries for each plant would average 67 trucks per day, increasing to 80 trucks per day for peak operations. Ash removal would constitute an additional 10 trucks per day. Appendix A-4 discusses the availability of biomass fuel within a 75 mile radius of the project site, but also includes supplies that could be trucked in from greater distances. Staff believes that the number of trucks combined with the distances they would be traveling to deliver fuel to the project could result in potential adverse impacts to nonrenewable energy resources.

DATA REQUEST

73. Please quantify the anticipated annual average transportation fuel consumption, in Btus, needed to convey the required biomass fuel supplies to the project site.

BACKGROUND

Heat balance information provided in the AFC is incomplete. The heat balance diagrams presented in Appendix A-3 of the AFC only provide a value for heat required from the boiler, in Btu/hr, for nighttime operation; heat requirements for daytime operation, which is anticipated for winter months when the solar field is shut down (AFC § 3.7.1) are not discussed. Expected performance data for the steam turbine is also absent.

DATA REQUEST

74. A. Please discuss the anticipated heat rates, providing values in Btu/kWh, for the boiler during each mode of operation, including daytime operation for winter months.
- B. Please describe the steam turbine generators chosen for the project, including estimated heat rates in Btu/kWh for each mode of operation (ie. solar only, boiler only, and solar and boiler).

Technical Area: Hazardous Materials Management

Author: Dr. Alvin Greenberg

BACKGROUND

Section 5.11.2.4 of the AFC states that transportation of hazardous materials would comply with all Laws, Ordinances, Regulations and Standards including selection of the shortest route for hazardous materials delivery and use of approved vehicles. However, the AFC does not specify the estimated frequency of aqueous ammonia deliveries to the project, the capacity of the tanker trucks that would be used to ship the aqueous ammonia, or the transportation route. This information is necessary to assess impacts from transportation of hazardous materials.

Also, Section 5.15.6.3 of the AFC states that plant personnel would be trained to handle and clean up spills and that in the event of a large spill, outside contractors would be called upon. No information is provided on available local hazardous materials response teams or cleanup contractors. Staff needs this information to fully evaluate the potential impacts of the project.

DATA REQUESTS

75. Please provide the estimated frequency of aqueous ammonia deliveries to the project, the capacity of the tanker trucks that would be used to ship the aqueous ammonia, and the designated transportation route from Interstate-5.
76. Please identify a contractor who will be used to contain and clean-up hazardous materials spills that might occur at the project.

Technical Area: Noise and Vibration

Author: Shahab Khoshmashrab

BACKGROUND

AFC Table 5.12-2 shows that only 15-minute ambient noise measurements were conducted at residential receptors ST6 and ST7. In order to evaluate the project's noise impacts at these receptors, staff needs to better understand the existing noise environment at these locations. AFC Section 5.12.4.1 states that ambient sound levels at receptors SR1 (residential property), H2 (Hospital), and P1 (Institution) are not available. In order to evaluate the project's noise impacts at these receptors, staff needs to understand the existing noise environment at these locations.

DATA REQUEST

77. Please conduct 25-hour ambient noise surveys at noise monitoring locations ST6, ST7, SR1, H2, and P1 as identified in the AFC. These surveys should be conducted during calm weather conditions.

Please provide the resultant noise levels in terms of L_{eq} , L_{min} , L_{max} , L_{10} , L_{50} , and L_{90} .

Technical Area: Public Health
Author: Dr. Alvin Greenberg

BACKGROUND

Assessment of potential health impacts due to toxic air contaminant emissions resulting from construction activities, specifically diesel, is required by the Energy Commission. Staff needs this information to fully assess the health impacts potentially posed to on-site workers and the off-site public.

DATA REQUEST

78. Please provide a health risk assessment (HRA) for construction vehicle diesel emissions.

BACKGROUND

Assessment of fugitive toxic air contaminants (TACs) emissions from the loading and unloading of fly ash produced in the biomass combustors was described in section 5.16.2.3 of the AFC and emission factors identified in Table 5.16-5. However, this table failed to include emissions of polychlorinated dibenzodioxins ("dioxins") and polychlorinated dibenzofurans ("furans") which have been shown to be produced and emitted from biomass combustors and adsorbed to fly ash and bottom ash. Additionally, staff needs complete copies of all documents used to generate emission factors for dioxins, furans, Polycyclic Aromatic Hydrocarbons (PAHs), and Hydrogen Chloride (HCl), as well as for the TACs emitted on fly ash. Staff also needs the HRA to include all project-related emissions including Diesel Particulate Matter (DPM) emissions from the estimated 28,360 truck trips for biomass fuel delivery annually (AFC Appendix B-3) if not already included in the HRA. This information is necessary to assess the impacts on workers, the public, and receptors at the nearby prison and hospital.

DATA REQUEST

79. Please provide fugitive emission factors for dioxins and furans on fly ash and all project-related emissions, including DPM emissions from the estimated 28,360 truck trips for biomass fuel delivery annually (if not already included in the HRA) and revise the health risk assessment to include these emissions.
80. Please provide complete copies of all documents used to generate biomass combustor emission factors for dioxins, furans, PAHs, hexavalent chromium, lead, Arsenic, Beryllium, Cadmium, Mercury, Nickel, and HCl. Please also provide complete copies of all documents used to generate emission factors for the TACs emitted on fly ash.

BACKGROUND

Assessment of public health impacts from TACs emissions must include a cumulative impact assessment from all known existing and reasonably potential future sources within a certain distance. Staff has previously determined on other projects that this cumulative health risk assessment should be conducted when other sources would be located very near the proposed project. The proposed power plant emission sources will be located within one mile of the hospital and within one mile of parts of the prison. Both

hospitals and prisons are known to have small power plants on their sites, hospitals may have a medical waste incinerator, and prisons may have industrial-like facilities such as shoe factories that use and emit volatile organic compounds (VOCs). Staff needs this information in order to fully assess all potential cumulative impacts on power plant worker health, public health, and off-site sensitive receptors at the hospital and prison.

DATA REQUEST

81. Please provide a cumulative health risk assessment that includes emissions of TACs from the prison, the hospital, and any other source located within one mile of the proposed power plant, as well as from all project-related sources, including DPM emissions from the estimated 28,360 truck trips for biomass fuel delivery, fugitive emissions of ash, emissions from the wet surface cooling towers, and DPM from vehicles used to wash the mirrors.

Technical Area: Power Plant Reliability

Author: Erin Bright

BACKGROUND

In order for the project to operate reliably, there needs to be a reliable source of fuel supply. The biomass fuel supply analysis provided in Appendix A-4 of the AFC demonstrates that the quantities of biomass fuel needed for the project are potentially available. However, staff is unsure of the consistency of this supply throughout the lifetime of the project.

DATA REQUEST

82. Please discuss possible fuel supply fluctuations during the lifetime of the project and provide evidence, such as a will serve letter or a description of terms for contracts currently being negotiated, that the fuel suppliers are willing and ready to supply the required quantities.

BACKGROUND

Section 3.4.3.4 of the AFC states that biomass fuel supplies would be stored in piles, under cover, in a large building. The project rendering provided in Figure 3.4-3, however, shows that the building in which the biomass would be stored would be open to the environment on at least one side.

DATA REQUEST

83. Please describe how the biomass fuel would be protected from rain and wind.

Technical Area: Socioeconomics
Author: Amanda Stennick

BACKGROUND

Section 5.10.2.2 of the Socioeconomics section of the AFC states, "The region is currently depressed and designated as an Economic Development Zone. Local support is strongly associated with the "Green Power" appeal of the SJS 1 & 2 project and the creation of jobs and new tax base. The site has applied for designation as an Enterprise Zone (EZ) which provides tax incentives in recognition of the project investments and job creations in the area. The EZ designation was unanimously approved by the Board of the Fresno County Economic Development Agency in August 2008. The Fresno County Supervisors will confirm the EZ designation by vote before YE 2008, although the Supervisors have already acknowledged pre-approval for the measure."

Section 5.9.1.3.2 of the Land Use section of the AFC states that 468.88 acres of the 640-acre project site is under Williamson Act contract #3219. The site is zoned AE (Agriculture Exclusive) and is currently used for agriculture and open space.

DATA REQUEST

84. Because a Williamson Act Contract is the legal document that obligates the property owner, and any successors of interest, to the contract's enforceable restrictions, please provide documentation that the Fresno County Board of Supervisors (or the Housing and Community Development Department) adopted (or approved) the project site as an Enterprise Zone.

BACKGROUND

The Fresno County Regional Enterprise Zone Tax Credit was established by the State of California to provide businesses the opportunity to create additional jobs, access more resources, and increase overall profitability through tax savings. The Fresno County Housing and Community Development Department designates economically depressed areas in California and establishes Enterprise Zones to encourage and stimulate growth, development, and investment in the area. Taxpayers who invest, operate, or locate a trade or business within an Enterprise Zone are eligible for special tax incentives, including hiring credit, sales and use, net interest deduction, and net operating loss deduction (NOL).

Employers conducting a trade or business inside an Enterprise Zone may claim a credit for the sales and use tax paid or incurred on the purchase of certain qualified machinery or equipment. Employers conducting a trade or business inside an Enterprise Zone may claim the hiring credit for wages paid to a qualified employee. Businesses conducting a trade or business within an Enterprise zone may elect to treat 40% of the cost of the qualified property as a business expense in the first year it is placed in service. A deduction from income is allowed for the amount of "net interest" received from the loans made to a trade or business located in an Enterprise Zone. 100% of NOLs of individuals or corporations doing business in an enterprise zone may be carried over the future years to reduce the amount of taxable income derived within the zone or area.

DATA REQUEST

85. Please provide an estimate of expected credit for the sales and use tax paid or incurred on the purchase of qualified machinery.
86. Please provide an estimate of expected hiring credit for wages paid to qualified employees.

Technical Area: Soil and Water Resources
Author: Christopher Dennis, P.G.

BACKGROUND

Project construction may induce water and wind erosion at the power plant site. Storm water runoff may also contribute to erosion and sedimentation as well as transport pollutants off site. Storm water will be collected, contained and managed under the State Water Resources Control Board NPDES General Permit requirements during construction and operation. Storm Water Pollution Prevention Plans (SWPPPs) will be required for both construction and operation of the power plant. The AFC briefly discusses some of the features and best management practices (BMPs) that will be implemented for this project. However, they are not described in sufficient detail to demonstrate that they will function as intended and/or comply with State and local requirements.

DATA REQUEST

87. Please provide a draft Erosion and Sedimentation Control Plan (DESCP) that ensures protection of water quality and soil resources of the project site and all linear facilities during the construction phase of the project. This plan shall address appropriate methods and actions for the protection of water quality and soil resources, demonstrate no increase in off-site flooding potential, meet local requirements, and identify all monitoring and maintenance activities. The draft plan shall be consistent with the grading and drainage plan and may incorporate by reference any storm water pollution prevention plan developed in conjunction with any NPDES permit.

The final DESCP that you will ultimately be required to provide shall contain the following elements:

- A. Vicinity Map – A map shall be provided indicating the location of all project elements with depictions of all significant geographic features such as watercourses, washes, irrigation and drainage canals, and sensitive areas.
- B. Site Delineation – The site and all project elements shall be delineated showing boundary lines of all construction areas and the location of all existing and proposed structures, pipelines, roads, and drainage facilities.
- C. Watercourses and Critical Areas – The DESCP shall show the location of all nearby watercourses including washes, irrigation and drainage canals, and drainage ditches, and shall indicate the proximity of those features to the construction site, laydown area, and all transmission and pipeline construction corridors.
- D. Drainage – The DESCP shall provide a topographic site map showing all existing, interim, and proposed drainage systems, drainage area boundaries and watershed size in acres, and the hydraulic analysis to support the selection of best management practices (BMPs) to divert off-site drainage around or through the site and laydown areas. Spot elevations shall be required where

relatively flat conditions exist. The spot elevations and contours shall be extended off site for a minimum distance of 100 feet in flat terrain.

- E. Clearing and Grading – The plan shall provide a delineation of all areas to be cleared of vegetation and areas to be preserved. The plan shall provide elevations, slopes, locations, and extent of all proposed grading as shown by contours, cross-sections, or other means. The locations of any disposal areas, fills, or other special features shall also be shown. Existing and proposed topography tying in proposed contours with existing topography shall be illustrated. The DESCP shall include a statement of the quantities of material excavated or filled for each element of the project (for example, project site, transmission corridors, and pipeline corridors), whether such excavations or fill is temporary or permanent, and the amount of such material to be imported or exported or a statement explaining that there will be no clearing and/or grading conducted for each element of the project.
 - F. Project Schedule – The DESCP shall identify on the topographic site map the location of the site-specific BMPs to be employed during each phase of construction (initial grading, project element excavation and construction, and final grading/stabilization). Separate BMP implementation schedules shall be provided for each project element for each phase of construction.
 - G. Best Management Practices – The DESCP shall show the location, timing, and maintenance schedule of all erosion and sediment-control BMPs to be used prior to initial grading, during project element excavation and construction, during final grading/stabilization, and after construction. BMPs shall include measures designed to control dust and stabilize construction access roads and entrances. The maintenance schedule shall include post-construction maintenance of treatment-control BMPs applied to disturbed areas following construction.
 - H. Erosion Control Drawings – The erosion-control drawings and narrative shall be designed and sealed by a professional engineer or erosion-control specialist.
88. Please provide draft SWPPPs consistent with the requirements for a National Pollutant Discharge Elimination System (NPDES) General Permit for construction and operation of the site and associated linear facilities.

BACKGROUND

The California Department of Transportation (Caltrans) may require the proposed transmission line connection to the Gates substation to be horizontally bored under Interstate Highway 5 (I-5). The AFC did not provide any discussion about whether horizontal boring would be required or by what method such boring would be accomplished.

DATA REQUEST

89. Please provide a description of the methodology proposed if Caltrans requires a subsurface crossing of I-5 by the transmission line. This description shall provide

the excavation and boring method, address soil and water management, erosion control, and provide a contingency plan in the event that groundwater is encountered.

BACKGROUND

The parabolic trough solar mirrors would require routine cleaning and roads between the rows of mirrors would require maintenance for vehicle access. Excess water from mirror washing would likely promote vegetation growth, particularly noxious and invasive species. It appears there would also be a need for dust suppression and soil stabilization along the roads between the rows of mirrors. Information related to the potential impacts from routine mirror washing and road maintenance was not provided.

DATA REQUEST

90. Please provide the long-term maintenance requirements for access roads, reapplication requirements of herbicides, dust suppressants, and soil stabilizers, and the expected number and size of the maintenance equipment that would be used for all maintenance activities in the facility.
91. Please provide the proposed mirror washing schedule, including the frequency, duration, and quantity of water that would be used.
92. Please describe in detail the method by which the mirrors would be washed and the volume of water that would run off the mirrors and onto the soil below the mirrors.
93. Please describe how vegetation would be managed, including treatment of noxious and invasive species, beneath the mirrors.
94. Please describe the chemical constituents and their concentration in the water that would be used to wash the mirrors.
95. Please discuss how wastewater from the mirror washing would be managed.
96. Please describe the specific chemicals compositions of any herbicides, dust suppressors, or soil stabilizers that would be used by the project.
97. Please discuss and quantify the buildup of the mirror wash water, herbicides, dust suppressor, and soil stabilizer chemicals in the soil over the life of the project.

BACKGROUND

The project proposes to use a combination of groundwater and recycled water for process cooling. Groundwater sampled from an onsite well at the proposed project location has a total dissolved solids (TDS) concentration of approximately 2,400 mg/l, which exceeds California's secondary maximum contaminant level (MCL). The well and project location are in the Pleasant Valley Groundwater Subbasin (PVGS), which is in a state of overdraft. An evaluation of the potential environmental impacts and compliance with laws, ordinances, regulations, and standards (LORS) has not been conducted for the use of this brackish water.

DATA REQUEST

98. Please quantify the potential environmental impact of using the proposed combination of recycled water and groundwater on the local and regional water supply and on other users of the groundwater basin. This analysis shall include whether the groundwater could be considered a potential drinking water supply, whether pumping could result in long-term overdraft, and whether there may be, if treated, any water quality impacts due to use of recycled water and groundwater.
99. If the groundwater could be considered a potential drinking water supply or have other significant beneficial uses, please quantify and discuss in detail the economic soundness and environmental desirability of using an air-cooled or air-water hybrid system for power plant cooling.

BACKGROUND

The proposed project would be constructed in two phases: SJS1 and SJS2. Secondary or tertiary recycled water is anticipated to be available in June 2011 when the new City of Coalinga's wastewater treatment facility (WWTP) is expected to be constructed and operational. SJS1 is expected to be operational during the first quarter of 2011 and SJS2 during the second quarter of 2011. The average annual water requirement of SJS1 and SJS2 combined would be 2,036 acre-feet. The maximum use would be 2,821 acre-feet. The city's WWTP would be designed to supply recycled water at the rate of approximately 1,049 to 1,128 acre-feet per year (AFY). The AFC states that the existing onsite well can supply water at an estimated annual rate of 2,257 acre-feet. An aquifer test conducted in the onsite well demonstrated a sustained yield of 900 gallons per minute for 72 hours with 51 feet of drawdown. SJS1 might not have a sufficient water supply for the plant's industrial processes until the city's WWTP is operational.

If the WWTP is built according to schedule, there would be a three to six month lag time between the beginning of SJS1's operations and delivery of recycled water from the WWTP. The applicant expects operations of SJS2 and the city's WWTP to coincide. However, any delay in the city's construction schedule would mean that the anticipated required water supply might not be available to SJS2 during this delay period.

Given the uncertainties in water supply, the potential impacts to the PVGS and other pumpers of the groundwater cannot be determined. Therefore, a careful and thorough evaluation of the project's proposed water supply is required.

DATA REQUEST

100. Please discuss whether the intent is to provide groundwater for both phases of the project if recycled water does not become available in accordance with the anticipated schedule for development of the WWTP.
101. If groundwater would be used for both phases, please discuss pump test results and whether the onsite well can yield a sufficient water volume to supply the entire project (SJS1 and SJS2).
102. Please discuss how water will be supplied to the proposed project, in compliance with all LORS and without substantially impacting other groundwater users, if recycled water is not available.
103. Please provide a map and plans showing the location of the future WWTP and how the anticipated volume of recycled water would be delivered to the project.
104. Please identify whether there are current or future customers that can or will request delivery of recycled water and identify the volume of water that will or would be required by those customers
105. Please provide the projected total volume of recycled water that would be produced by the City of Coalinga's WWTP during the first 10 years of the proposed power plant's operation and provide a copy of the source of that information.
106. Please discuss the reliability of the recycled water supply and the expected duration of the interruptions in production or delivery of recycled water and quantify, on an annual basis over the life of the project, how much water would not be available due to each interruption.

BACKGROUND

The potential incremental and cumulative impact on the groundwater supply by existing and new users of the groundwater has not been fully evaluated.

DATA REQUEST

107. Please quantify the potential water use by all existing and reasonably foreseeable projects within the PVGS and provide the rationale for why particular projects may not be included in this listing.
108. Please discuss the potential incremental and cumulative impact to the PVGS water quality and water supply by the projects within the listing.

BACKGROUND

The Energy Commission staff analysis must address any requirements the Central Valley Regional Water Quality Control Board (CVRWQCB) may have for discharge to land or waters of the state. This would include a Waste Discharge Report (WDR) for the proposed evaporation pond.

DATA REQUEST

109. Please provide a copy of the draft Report of Waste Discharge for the proposed evaporation pond and a copy of comments from the CVRWQCB.
110. Please describe any other reporting requirements the CVRWQCB has for the proposed project and provide copies of the draft reports with a copy of comments from the CVRWQCB.
111. Please discuss the economic feasibility and environmental pros and cons of using a zero liquid discharge system as an alternative to an evaporation pond.

BACKGROUND

A project closure and site restoration plan has not been submitted for this project.

DATA REQUEST

112. Please submit a site closure and restoration plan that includes a post-operation storm water and sediment erosion control plan.
113. Please describe how the onsite well(s) would be properly destroyed or abandoned.

Technical Area: Traffic and Transportation
Author: Robert Fiore

BACKGROUND

Section 5.11.2.6.2, Table 5.11-6, Page 5.11-10 indicates that the total number of operational trips during AM and PM peak is about 1/10th of the total daily trips. It appears that a large number of daily trips may not occur during peak hour.

DATA REQUEST

114. Please provide the basis for the fraction of daily trips assumption. Also discuss the affects of daily trips on roadway capacity, flow and Average Daily Trips (ADT).

BACKGROUND

Section 5.11.1.4.3, Table 5.11-2, Page 5.11-4 and Section 5.11.2.7.5, Table 5.11-9, Page 5.11-12 and Section 5.11.2.8.5, Table 5.11-13, Page 5.11-16 presents ADT Level of Service (LOS) but not peak hour LOS for I-5. In addition, peak travel times on I-5 may not occur during typical peak hours but may occur during weekends and holidays.

DATA REQUEST

115. Please provide data regarding peak hour LOS for I-5. If data is not available to present peak hour LOS, please provide assumptions and describe methodology for establishing peak hour LOS.

BACKGROUND

The AFC does not provide discussion on school bus routes and the projects's potential for impacts on school bus routes and children safety.

DATA REQUEST

116. Please provide school bus routes and schedules and discussion on the potential impacts during construction and operation to school bus transportation.

BACKGROUND

Figure 3.4-7 illustrates potential transmission line routes crossing I-5 to the Gates Substation. Obtaining Encroachment Permits from California Department of Transportation can be time intensive.

DATA REQUEST

117. Please provide documentation or correspondence demonstrating coordination with Caltrans for transmission lines crossing I-5. In addition, please indicate whether the transmission line would cross over or under the Caltrans right of way (ROW).

BACKGROUND

The discussion pertaining to glint/glare and plumes on page 5.13-25 through 27, section 5.13.2.2.2, discusses general aviation airports within close proximity to the site. In addition, the area is characterized by agricultural land use. The discussion in this section does not address glint/glare and plumes as it pertains to crop dusting activities.

DATA REQUEST

118. Please provide discussion regarding potential of glint/glare and plumes to impact crop dusting activities.

Technical Area: Transmission System Engineering

Author: Ajoy Guha, P. E. and Mark Hesters

INTRODUCTION

Staff needs to determine the system reliability impacts of the project interconnection and to identify the interconnection facilities including downstream facilities needed to support the reliable interconnection of the proposed San Joaquin Solar 1 & 2 Hybrid Project (SJS 1 & 2). The interconnection must comply with the Utility Reliability and Planning Criteria, North American Electric Reliability Council (NERC) Planning Standards, NERC/Western Electricity Coordinating Council (WECC) Planning Standards, and California Independent System Operator (California ISO) Planning Standards. In addition the California Environmental Quality Act (CEQA) requires the identification and description of the “Direct and indirect significant effects of the project on the environment.” Staff has previously relied on the System Impact Study (SIS) and Facilities Study (FS) as well as review of these studies by the agencies responsible for insuring the adjacent interconnecting grid meets reliability standards, in this case, Pacific Gas & Electric (PG&E) and/or California ISO for determining the compliance with planning and reliability standards and identifying indirect or downstream transmission impacts. However, the California ISO’s generator Interconnection study process under the new Large Generator Interconnection Procedures (LGIP) is in transition from a queue or serial SIS to a cluster window process for the Phase 1 and Phase 2 Interconnection studies. According to the latest information the Phase 1 Interconnection study (same as the SIS except it will be done with several queue projects in the same region together) should be completed in July, 2009 and the Phase 2 Interconnection study (same as the FS and Operational study, but with the queue projects as included in the Phase 1 Interconnection study) would be performed at a later date. The Interconnection studies would analyze the effect of the proposed project on the ability of the transmission network to meet reliability standards. When the studies determine that the project will cause the transmission to violate reliability requirements the potential mitigation or upgrades required to bring the system into compliance are identified. The mitigation measures often include modification and construction of downstream transmission facilities. CEQA requires environmental analysis of any downstream facilities for potential indirect impacts of the proposed project.

BACKGROUND

Staff has received a copy of the signed Large Generator Interconnection Study Agreement (LGISA) dated October 24, 2008 between the applicant’s parent company (Martifer Renewables Solar Thermal, LLC) and the California ISO, and proof of payment.

According to the latest information the Phase 1 Interconnection study should be completed by the California ISO in July, 2009 and thus is expected by staff at the end of July or early August of 2009. The applicant’s timely submission of the Phase 1 Interconnection study report is important for the Energy Commission’s Application for Certification (AFC) process.

DATA REQUESTS

Please provide the Phase 1 Interconnection study report prepared by the California ISO according to the current LGIP, which includes the interconnection of the proposed SJS 1 & 2 106.8 MW new generation to the PG&E Gates substation with the following:

119. Power flow analysis for normal (N-0) system conditions with all facilities in service, and for Category B (N-1, L-1 & G-1) and Category C (N-2 or more) contingencies. Provide a mitigation plan for any identified reliability criteria violations in the PG&E grid. Provide a list of contingencies studied and the study results of the analysis in a table format with pre and post-project(s) data. In the report list all major assumptions in the base case including major path flows, major generators including generators in the California ISO queue & hydroelectric generators and loads in the area systems. Also identify the reliability and planning criteria utilized to determine the reliability criteria violations.
120. Provide power flow diagrams (units in MW, percentage loading and per unit voltage) with and without the SJS 1 & 2 and other queue project generations (as applicable) for the base cases. Power flow diagrams should also be provided for all overloads or voltage criteria violations under normal system (N-0) or contingency (N-1 & N-2) conditions
121. Transient stability analysis for critical Category B (N-1) and Category C (N-2) contingencies of the PG&E bulk power (230 & 500 kV) transmission lines/transformers and for full load rejection of the proposed SJS 1 & 2 and other queue project generators (as applicable) with monitoring of voltages, frequencies and generator rotor angles.
122. Short circuit analysis for three line-to-ground faults. Analysis for single line-to-ground faults should be performed, if necessary data is available.
123. Post-transient voltage analysis with governor power flow for selected single and double contingencies.
124. Reactive power deficiency analysis with reactive MVAR output for selected single and double contingencies.
125. Provide electronic copies of *.sav, *.drw, *.dyd and *.swt GE PSLF files and EPCL contingency files in a CD, if available.

Provide the study results of each analysis in a table format with pre and post-project data and also the list of contingencies, if applicable.

BACKGROUND

Photo Simulations

Page 5.13-8 of the AFC states that I-5 is “considered by the County of Fresno to be a Scenic Highway.” The AFC describes the visibility of the Project site from I-5, but does not discuss the visibility of the transmission line right-of-way, nor the transmission line crossing of I-5.

DATA REQUEST

126. A. Please prepare a photo simulation of the transmission line crossing of the I-5 vicinity from a Key Observation Point (KOP) located within the Fresno County scenic highway corridor of I-5. The KOP should be located where the transmission line crossing (and any associated structures), would be most visible to I-5 travelers
 - B. Given the potential for an underground placement of the I-5 crossing of the transmission line, please provide a photo simulation of the transmission area from above ground to underground.
127. Please describe the existing visual condition and analyze the visual effects associated with the new KOP consistent with the analysis of other KOPs in the AFC, including an evaluation of consistency with laws, ordinances, regulations and standards (LORS), and mitigation measures. Please provide a revised Figure 5.13-2 that shows the location of the new KOP and highlight the County scenic highway segment of I-5.

BACKGROUND

The state hospital site lies adjacent to the western project site boundary. The hospital building appears to be a two or three story building with some windows oriented towards the project site. Staff is concerned that the visual impacts of the solar fields, particularly in the late afternoon due to glare or glint from the solar collector arrays (SCA) could impact the residents in the state hospital.

DATA REQUEST

128. Please discuss the potential visual effects of the project on residents of the state hospital, and if there is the potential for significant effects, prepare a photo simulation from an east-facing window of the hospital that would be representative of the potential project effects.

BACKGROUND

Glint and Glare

Page 5.13-25 of the AFC, last paragraph, states: “During rotation of the collectors from the stow position, potential glint/glare from the mirrors may be visible to adjacent areas to the east/west; however, as this would occur in the early hours of the morning, sunlight is not strong and glint/glare from the mirrors is not anticipated to be significant.”

DATA REQUEST

129. A similar discussion of the effects of late afternoon glint and glare on locations to the west is needed.

BACKGROUND

Page 5.13-26 of the AFC, first paragraph, regarding glint and glare states: “During final design, if design analysis indicates that significant glint/glare impacts would occur, potential mitigation should be proposed.”

Page 3, Appendix L of the AFC states: “It should be noted that pedestrians who are standing within 60 feet of the outside of the plant perimeter fence to the east or west may see a beam intensity as high or higher than what is recommended as a safe level on the human retina.” A 10-foot-high fence with privacy slats is proposed for the project site perimeter; however the height of the SCAs is stated as 16 feet, meaning that most of the parabola of the SCA would extend above the height of the fence, and would not be blocked by the fence.

DATA REQUEST

130. Please discuss the types of activities that could occur within 60 feet of the project fence, and the types of users that could have access to the area within 60 feet of the project fence. Please explain to what degree the privacy slats would block out potentially harmful beams.
131. Please describe, using text and drawings of the fence, SCAs, and the nearest buildings to the east and west of the project site (such as the hospital, prison and residences) the effectiveness of the fence in blocking potentially harmful beams.
132. Describe in text, or with drawings, mitigation measures that would be needed to protect the human eye from unsafe levels of beam intensity.

BACKGROUND

Night Lighting

The AFC states there will be two work crews cleaning the SCAs at night, and no fixed lighting is proposed for use in the solar fields. There is no description of the lighting needs for the night cleaning crews. The AFC (page 3-20, second paragraph) states that 30-foot high lights will be needed for biomass operations at night. The number of such lights is not given.

DATA REQUEST

133. Please describe the lighting needs for the two work crews that will be cleaning the SCAs at night, and identify the number of 30-foot lights that will be needed for biomass operation.

Technical Area: Visual Resources – Visible Plume

Author: William Walters

BACKGROUND

Biomass Combustor Operating Data

Staff plans to perform a visible plume modeling analysis of the biomass combustor exhausts. Staff requires additional biomass combustor operating information to complete this analysis.

DATA REQUEST

134. Please explain how exhaust conditions and stack parameters would change corresponding to the composition of production base as shown in Figure 3.7-1 and the Table 5.2-23 in the AFC.
135. Please summarize for the biomass combustor the exhaust conditions to complete the table below, and additional data as necessary, for staff to be able to determine how the biomass combustor operating conditions/exhaust parameters will vary with solar generation.

Parameter	Gas Turbine/HRSG Exhausts (each)					
Stack Height*	30.48 m (100 ft)					
Stack Diameter*	2.083 m (6.83 ft)					
Stack Separation*	16.4 m (53.8 ft) within each set of two, 70.0 m (229.5 ft) between each set of two					
Ambient Temperature*	30 °F	60 °F	90 °F			
Ambient Relative Humidity	90%	60%	20%			
Production base	100 % Biomass Combustor Load					
Exhaust Temperature (°F)						
Exhaust Flow Rate (1000 lbs/hr)						
Exhaust Moisture Content (vol %)						
Production base	50 % Biomass Combustor Load					
Exhaust Temperature (°F)						
Exhaust Flow Rate (1000 lbs/hr)						
Exhaust Moisture Content (vol %)						

*Ambient conditions were selected to represent a normal range; the applicant can select a different range if necessary, or can provide data for a single ambient condition if ambient temperature and relative humidity does not significantly influence these stack exhaust parameters. Stack height, diameter, and separation are from the AQ modeling files.

Additional combinations of temperature and relative humidity, if provided by the applicant, will be used to more accurately represent the biomass combustor exhaust conditions.

BACKGROUND

Cooling Tower Operating Data

Staff plans to perform a plume modeling analysis of the cooling towers. Staff requires additional cooling tower operating information to complete this analysis.

DATA REQUEST

136. Please explain how the heat rejection and resulting exhaust conditions (including the number of cooling tower cells in operation) would change corresponding to the composition of production base as shown in Figure 3.7-1 and the Table 5.2-23 in AFC, and as ambient conditions vary.
137. Please summarize for the cooling tower the conditions that affect vapor plume formation including cooling tower heat rejection, exhaust temperature, and exhaust mass flow rate. Please provide values to complete the table, and additional data as necessary for staff to be able to determine how the heat rejection load varies with ambient conditions and also determine at what operating and ambient conditions cooling tower cells may be shut down.

Parameter	Cooling Tower Exhausts					
Number of Cells	4 cells (two 2-cell cooling tower)					
Cell Height*	7.925 m (26 ft)					
Cell Diameter*	7.925 m (26 ft)					
Tower Housing Length**	91.75 meters (301 feet)					
Tower Housing Width**	33.22 meters (109 feet)					
Ambient Temperature*	30 °F	60 °F	90 °F			
Ambient Relative Humidity	90%	60%	20%			
Production base	100 % Biomass Combustor Load					
Number of Cells in Operation						
Heat Rejection (MW/hr)						
Exhaust Temperature (°F)						
Exhaust Flow Rate (lb/hr)						
Production base	50 % Biomass Combustor Load					
Number of Cells in Operation						
Heat Rejection (MW/hr)						
Exhaust Temperature (°F)						
Exhaust Flow Rate (lb/hr)						
Production base	0 % Biomass Combustor Load					
Number of Cells in Operation						
Heat Rejection (MW/hr)						
Exhaust Temperature (°F)						
Exhaust Flow Rate (lb/hr)						

*Ambient conditions were selected to represent a normal range; the applicant can select a different range if necessary. Stack height and diameter are from the AQ modeling files.

** The tower length and width are estimated from the project description site plan which conflicts with the values in the visual resources section, so staff would like the applicant to confirm these values.

Additional combinations of temperature and relative humidity or curves showing heat rejection vs. ambient condition and solar condition, if provided by the applicant, will be used to more accurately represent the cooling tower exhaust conditions. Please include appropriate design safety margins for the heat rejection, exhaust flow rate and exhaust temperature in consideration that the air flow per heat rejection ratio is often used as Condition of Certification confirmation of design limit.

San Joaquin Solar 1 & 2 (08-AFC-12)
Data Requests

138. Please provide the cooling tower manufacturer and model number information and a fogging frequency curve from the cooling tower vendor, if available.
139. Please confirm that the cooling tower fan motors will not have dual speed or variable speed/flow controllers. If the cooling tower will have a dual speed or variable speed option, then the exhaust flow rate data given for the cooling tower to complete the exhaust condition table data request should both reflect this assumption and note the specific fan speed(s) assumed.
140. Please describe why the cooling towers, as depicted in the project description with very small exhaust diameters compared to their width and length, do not have the appearance of typical power plant cooling towers.

Technical Area: Waste Management
Author: Ellie Townsend-Hough

BACKGROUND

The Integrated Waste Management Act of 1989 (AB 939) established landfill waste diversion goals of 50 percent by the year 2000 for state and local jurisdictions. To meet the solid waste diversion goals, many local jurisdictions have implemented Construction and Demolition Waste Diversion Programs.

DATA REQUESTS

141. Please indicate whether the county of Fresno operates a Construction and Demolition Waste Diversion Program.
142. Please provide information on how the San Joaquin Solar Project will meet each of the requirements of the program cited in the previous data request.

BACKGROUND

For any site in California proposed for the construction of a power plant, the applicant must provide documentation about the nature of any potential or existing releases of hazardous substances or contamination at the site. If potential or existing releases or contamination at the site are identified, the significance of the release or contamination would be determined by site-specific factors, including, but not limited to: the amount and concentration of contaminants or contamination; the proposed use of the area where the contaminants/contamination is found; and any potential pathways for workers, the public, or sensitive species or environmental areas to be exposed to the contaminants (Siting Regulations Appendix B (g)(12)(A)).

The San Joaquin Solar Project is proposing a 6-mile long 230 kV transmission line interconnection. This alignment has not been evaluated in accordance with the regulations cited above. In order to satisfy this requirement and exercise due diligence to ensure there are no contaminants that would pose a health and safety risk, the applicant should conduct a Phase I Environmental Site Assessment (ESA) in accordance with ASTM Standard E 1527-05 guidelines.

DATA REQUESTS

143. Please provide a Phase I ESA for the 6-mile 230 kV transmission line interconnection route that has been prepared in accordance with ASTM Standard E 1527-05 guidelines.
144. Where the alignment traverses properties where there has been agricultural land use, the Phase I ESA shall identify the type of crops grown over as long a period as records indicate, the historical use and identity of pesticides (including organic and inorganic pesticides as well as herbicides), and a statement of the likelihood of finding levels of pesticides along the pipeline/transmission route that might present a risk to pipeline workers and/or the public.

BACKGROUND

The San Joaquin Solar 1 & 2 Project proposes to recycle both non-hazardous and hazardous wastes as much as possible and also proposes to implement a waste minimization program. Staff fully supports these efforts.

On Page 3-7, the AFC states “Ash produced from the combustion process will be stored in silos until transported off site for beneficial uses.... All of the ash produced from the facility is anticipated to be marketable for these purposes, which are traditional uses for similar ash byproducts produced by existing biomass facilities throughout the state burning the same fuels as the proposed project.”

Table 5.14-3 shows that as much as 50,000 tons per year of fly ash could be generated. However, the applicant has provided no information on businesses that would purchase or reuse the fly ash.

DATA REQUESTS

145. Please provide a summary table of information on proposed businesses that would purchase fly ash from the project. At a minimum, please include the following information for each facility: facility location, distance from project site, capacity, materials accepted, acceptance limits (if any), volume they would purchase or accept, and terms of agreement under which they would purchase or accept fly ash from the project.

BACKGROUND

The historical use of the proposed project site was agricultural, which suggests that pesticides and herbicides were used on the site. The Phase I ESA also described the northeast portion of the site as part of the Gujarral Oil Field which contains six abandoned oil wells and two oil tanks. The Phase I ESA also noted that there was oil staining on the ground surface and piping from an aboveground storage tank. During a site inspection by staff on April 15, 2009, staff noted that the site had been cleared and was not in the same condition as described in the Phase 1 ESA. All structure had been removed and the site had been graded flat.

The Phase I Environmental Site Assessment (ESA) did not identify any recognized environmental conditions, thereby eliminating the need for a Phase II ESA. Although a Phase II ESA was not completed, staff believes that given these past land uses and proposed construction the project owner should verify that no harmful concentrations of any contaminants will be encountered at the proposed project site.

Common agricultural practices can result in residual concentrations of fertilizers, pesticides or herbicides in near-surface soil. To ensure that the concentrations of various chemicals do not pose a potential health risk or hazard, the project owners should provide soil sampling of the parcel/project site. The California Department of Toxic Substances Control (DTSC) has prepared the “Interim Guidance for Sampling Agricultural Fields for School Sites (Second Revision August 26, 2002)”. Staff believes this guidance or equivalent may be appropriate for further site analysis.

DATA REQUEST

146. Please provide results of field sampling and analysis that adequately characterize the presence of harmful chemicals or conditions and whether there will be any risk to construction or plant personnel due to the presence of these chemicals. The project owner should determine if there is any analytical characterization data for the agricultural chemicals that were applied to the land. Samples should be assessed for persistent agricultural chemicals, such as organochlorine pesticides that were applied to the project property.
147. Please provide information on when, and how the oil tanks, excess aboveground piping and waste oil was or will be cleaned up and disposed of prior to construction at the project site.
148. Please provide information showing the abandoned oil wells have been abandoned in accordance with applicable LORS and do not present a safety concern.



**BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
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**APPLICATION FOR CERTIFICATION
FOR THE *SAN JOAQUIN SOLAR UNITS 1 AND 2*
*LICENSING PROJECT***

Docket No. 08-AFC-12

**PROOF OF SERVICE
(Revised 4/24/2009)**

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Declaration of Service

I, Mineka Foggie , declare that on April 30, 2009, I served and filed copies of the attached San Joaquin Solar 1 & 2 Hybrid Project (08-AFC-12) Data Request Set 1 (# 1- 148). The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: [<http://www.energy.ca.gov/sitingcases/sjsolar/index.html>]. The document has been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(Check all that Apply)

For service to all other parties:

 X sent electronically to all email addresses on the Proof of Service list;

_____ by personal delivery or by depositing in the United States mail at _____ with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses **NOT** marked "email preferred."

AND

For filing with the Energy Commission:

 X sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (preferred method);

OR

_____ depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION

Attn: Docket No. 08-AFC-12

1516 Ninth Street, MS-4

Sacramento, CA 95814-5512

docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct.

Original Signature in Dockets

Mineka Foggie